

[illegible]

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7. A repeater according to claim 5, wherein the first and second antennas are adapted to receive differently polarized signals.

8. A repeater according to claim 1, wherein the first and the second repeating  
2 sections are adapted to introduce a time differential between the reverse-main-signals  
and the reverse-diversity-signals.

9. A radio-frequency (RF) repeater system, comprising:

2 a first repeater unit, which is adapted to receive and amplify forward-signals from a first transceiver so as to generate amplified-forward-signals;

4 cabling, which is adapted to receive and convey the amplified-forward-signals from the first repeater unit; and

6 a second repeater unit, which is adapted to receive the amplified-forward-signals from the cabling and to further amplify the amplified-forward-signals so as to

8 generate resultant-forward-signals and to radiate the resultant-forward-signals to a second transceiver, and which is adapted to receive and amplify reverse-main-signals

10 and reverse-diversity-signals from the second transceiver so as to generate respectively amplified-reverse-main-signals and amplified-reverse-diversity-signals

12 and to convey the amplified-reverse-main-signals and the amplified-reverse-diversity-signals to the first repeater unit via the cabling, and wherein the first repeater unit is

14 adapted to further amplify the amplified-reverse-main-signals and amplified-reverse-diversity-signals so as to generate respective resultant-reverse-main-signals and

16 resultant-reverse-diversity-signals and to transmit the resultant-reverse-main-signals and the resultant-reverse-diversity-signals to the first transceiver.

10. A repeater according to claim 9, wherein the forward-signals are not received

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17. A repeater according to claim 9, wherein the first repeater unit comprises a  
2 power supply which supplies power to the first repeater unit and to the second  
repeater unit via the cabling.

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22. A repeater according to claim 9, wherein the second repeater unit comprises:

2 a first reverse-signal-converter adapted to generate the amplified-reverse-main-signals as converted-frequency-reverse-main-signals; and

4 a second reverse-signal-converter adapted to generate the amplified-reverse-diversity-signals as converted-frequency-reverse-diversity-signals,

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26. A repeater according to claim 25, wherein the second LO frequency and the first LO frequency are different.

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27. A repeater according to claim 22, wherein the first reverse-signal-converter  
comprises a first optical emitter which generates a first modulated-optical-carrier  
responsive to the reverse-main-signals, and wherein the third reverse-signal-converter  
comprises a first optical detector which receives the first modulated-optical-carrier  
and generates the resultant-reverse-main-signals therefrom, and wherein the cabling  
comprises a fiber optic cable.

28. A repeater according to claim 27, wherein the second reverse-signal-converter  
comprises a second optical emitter which generates a second modulated-optical-  
carrier responsive to the reverse-diversity-signals, and wherein the fourth reverse-  
signal-converter comprises a second optical detector which receives the second  
modulated-optical-carrier and generates the resultant-reverse-diversity-signals  
therefrom.

29. A repeater according to claim 28, wherein the second modulated-optical-  
carrier comprises a second modulated-optical-carrier frequency different in value  
from a first modulated-optical-carrier frequency of the first modulated-optical-carrier.

30. A method for repeating radio-frequency (RF) signals, comprising:  
receiving in a first repeating section forward-signals from a first transceiver;  
amplifying the forward-signals in the first repeating section so as to generate  
amplified-forward-signals;  
radiating the amplified-forward-signals from the first repeating section to a  
second transceiver;  
receiving in the first repeating section reverse-main-signals from the second  
transceiver;  
amplifying the reverse-main-signals in the first repeating section so as to  
generate amplified-reverse-main-signals;  
transmitting the amplified-reverse-main-signals from the first repeating  
section to the first transceiver;

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36. A method according to claim 34, wherein the first and second antennas are  
2 adapted to receive differently polarized signals.

37. A method according to claim 30, and comprising introducing a time delay  
2 between the reverse-main-signals and the reverse-diversity-signals.

38. A method for repeating radio-frequency (RF) signals, comprising:  
2 receiving forward-signals from a first transceiver;  
amplifying the forward-signals in a first repeater unit so as to generate  
4 amplified-forward-signals;  
conveying the amplified-forward-signals to a second repeater unit;  
6 further amplifying the amplified-forward-signals in the second repeater unit so  
as to generate resultant-forward-signals;  
8 radiating the resultant-forward-signals to a second transceiver;  
receiving reverse-main-signals and reverse-diversity-signals from the second  
10 transceiver;  
amplifying the reverse-main-signals and the reverse-diversity-signals in the  
12 second repeater unit so as to generate respectively amplified-reverse-main-signals and  
amplified-reverse-diversity-signals;  
14 conveying the amplified-reverse-main-signals and the amplified-reverse-  
diversity-signals to the first repeater unit;  
16 further amplifying the amplified-reverse-main-signals and amplified-reverse-  
diversity-signals in the first repeater unit so as to generate respectively resultant-  
18 reverse-main-signals and resultant-reverse-diversity-signals; and  
transmitting the resultant-reverse-main-signals and the resultant-reverse-  
20 diversity-signals to the first transceiver.

39. A method according to claim 38, wherein conveying the amplified-forward-  
2 signals comprises conveying the amplified-forward-signals via cabling.



40. A method according to claim 38, wherein the forward-signals are not received  
2 by the second transceiver, and the reverse-main-signals and the reverse-diversity-  
signals are not received by the first transceiver.

41. A method according to claim 38, wherein receiving the reverse-main-signals  
2 and the reverse-diversity-signals from the second transceiver comprises transmitting a  
reverse-signal from the second transceiver and generating the reverse-main-signals  
4 and the reverse-diversity-signals responsive to the reverse-signal.

42. A method according to claim 38, wherein receiving the reverse-main-signals  
2 and the reverse-diversity-signals comprises receiving the reverse-main-signals in a  
first antenna and receiving the reverse-diversity-signals in a second antenna.

43. A method according to claim 42, wherein the first and second antennas are  
2 separated by a distance within a range of 1 - 6 wavelengths of the reverse-main-  
signals and the reverse-diversity-signals.

44. A method according to claim 42, wherein the first and second antennas are  
2 adapted to receive differently polarized signals.

45. A method according to claim 38, and comprising introducing a time delay  
2 between the reverse-main-signals and the reverse-diversity-signals.

46. A method according to claim 38, wherein conveying the amplified-forward-  
2 signals comprises conveying the amplified-forward-signals via a first cable, and  
wherein receiving the reverse-main-signals and the reverse-diversity-signals  
4 comprises conveying the reverse-main-signals via the first cable and conveying the  
reverse-diversity-signals via a second cable.

47. A method according to claim 38, wherein amplifying the forward-signals  
2 comprises converting a frequency of the forward-signals to generate the amplified-  
forward-signals as converted-frequency-forward-signals, and wherein further  
4 amplifying the amplified-forward-signals comprises generating the resultant-forward-  
signals from the converted-frequency-forward-signals.

48. A method according to claim 47, wherein converting the frequency of the  
2 forward-signals comprises mixing the forward-signals in a first mixer with a local  
oscillator (LO) frequency and generating the converted-frequency-forward-signals as  
4 intermediate-frequency-forward-signals (IF-forward-signals) having a frequency less  
than the forward-signals, and wherein further amplifying the amplified-forward-  
6 signals comprises mixing the IF-forward-signals with the LO frequency and the IF-  
forward-signals in a second mixer and generating the resultant-forward-signals  
8 therefrom.

49. A method according to claim 47, wherein converting the frequency of the  
2 forward-signals comprises modulating an optical carrier to generate a modulated-  
optical-carrier responsive to the forward-signals, and conveying the modulated-  
4 optical-carrier from the first repeater unit to the second repeater unit via a fiber optic  
cable, and generating the resultant-forward-signals comprises detecting the  
6 modulated-optical-carrier.

50. A method according to claim 38, and comprising:  
2 generating in a first reverse-signal-converter comprised in the second repeater  
unit the amplified-reverse-main-signals as converted-frequency-reverse-main-signals;  
4 generating in a second reverse-signal-converter comprised in the second  
repeater unit the amplified-reverse-diversity-signals as converted-frequency-reverse-  
6 diversity-signals;  
generating in a third reverse-signal-converter comprised in the first repeater  
8 unit the resultant-reverse-main-signals from the converted-frequency-reverse-main-

51. A method according to claim 50, wherein the converted-frequency-reverse-diversity-signals comprise a different frequency from the converted-frequency-reverse-main-signals.

53. A method according to claim 52, wherein generating in the second reverse-signal-converter comprises mixing a second LO frequency different from the first LO frequency with the reverse-diversity-signals so as to generate the converted-frequency-reverse-diversity-signals as intermediate-frequency-reverse-diversity-signals (IF-reverse-diversity-signals) having a frequency less than the reverse-diversity-signals, and wherein generating in the fourth reverse-signal-converter comprises mixing the second LO frequency and the IF-reverse-diversity-signals so as to generate the resultant-reverse-diversity-signals therefrom.

54. A method according to claim 50, wherein generating in the first reverse-signal-converter comprises modulating a first optical emitter with the reverse-main-signals so as to produce a first modulated-optical-carrier and conveying the first modulated-optical-carrier from the second repeater unit to the first repeater unit via a

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55. A method according to claim 54, wherein generating in the second reverse-  
2 signal-converter comprises modulating a second optical emitter with the reverse-  
diversity-signals so as to produce a second modulated-optical-carrier, and conveying  
4 the first modulated-optical-carrier from the second repeater unit to the first repeater  
unit via the fiber optic cable, and wherein generating in the fourth reverse-signal-  
6 converter comprises detecting in a second optical detector the second modulated-  
optical-carrier and generating the resultant-reverse-diversity-signals therefrom.

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57. A method for repeating radio-frequency (RF) signals, comprising:

2 receiving forward-signals from a first transceiver;

amplifying the forward-signals in a first repeater unit so as to generate

4 amplified-forward-signals;

conveying the amplified-forward-signals to a plurality of second repeater

6 units;

further amplifying the amplified-forward-signals in the plurality of second

8 repeater units so as to generate resultant-forward-signals;

radiating the resultant-forward-signals to a second transceiver;

10 receiving reverse-main-signals and reverse-diversity-signals from the second transceiver;

12 amplifying the reverse-main-signals and the reverse-diversity-signals in the plurality of second repeater units so as to generate respectively amplified-reverse-main-signals and amplified-reverse-diversity-signals;

14 conveying the amplified-reverse-main-signals and the amplified-reverse-diversity-signals to the first repeater unit;

16 further amplifying the amplified-reverse-main-signals and amplified-reverse-diversity-signals in the first repeater unit so as to generate respectively resultant-reverse-main-signals and resultant-reverse-diversity-signals; and

18 transmitting the resultant-reverse-main-signals and the resultant-reverse-diversity-signals to the first transceiver.

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58. A method according to claim 57, wherein conveying the amplified-forward-signals comprises conveying the amplified-forward-signals via cabling.

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